

**Planets**

There are eight known planets in our solar system that revolve around the Sun.  
The order of the planets as they move farther from the Sun is: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune.

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| **TIP** |

You can use a mnemonic to remember the order of them.One example of a mnemonic for this concept is “My Very Educated Mother Just Served Us Nachos”.

The four planets closest to the Sun (Mercury, Venus, Earth, and Mars) are called the **inner planets**. These small planets are also called terrestrial planets because they are similar to the Earth and are made up of rock.

The four planets farthest from the Sun; Jupiter, Saturn, Uranus, and Neptune are called the **outer planets**. These large planets are also called gas giants because they do not appear to have a solid surface (although they have a core made up of liquid or solid elements).

The **orbital period** for a planet is the period of time for a planet to complete one revolution around the Sun. For earth that is 365 days for Mars it is **\_\_\_\_\_\_\_\_\_** days.

The **rotation** for a planet is the motion of it spinning on it’s axis. Earth completes one full rotation every 24 hours. Venus completes a full rotation in **\_\_\_\_\_\_\_\_\_\_** days.

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| **TASK** | In pairs create your own mnemonic for the planets and their order |
| **QUESTION** | If you were living on Jupiter, how long would it take between successive sunrises |

**Solar System**

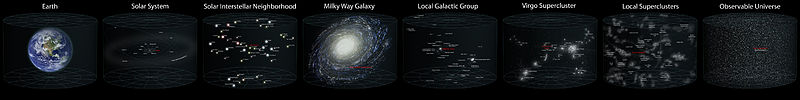
The solar system consists of the Sun and all the objects that travel around it (planets, moons etc.)

**Galaxies**

Consist of stars and groups of stars (star constellations). The galaxy that our solar system belongs to, is called the “Milky Way”. It contains 200-400 billion stars and is classified as a barred spiral galaxy. Others types of galaxies are elliptical

**Universe**

The study of astronomy is the study of all the objects beyond the Earth's atmosphere in other words, it is the study of the Universe. The major components of the universe include planets, moons, stars, and galaxies. Astronomers have collected information about the distances between certain celestial bodies and their motion. Because objects are very far apart from each other in space, astronomers use astronomical units (A.U.) and light years to measure the distances.



Planet < Solar System < Galaxy < Universe

(e.g.Mars) (e.g. Milky Way)

**MEASURING DISTANCES IN THE UNIVERSE**

**Astronomical Units (AU):** The mean distance between the Earth and the Sun. It is approx. 150 million kilometres in length.

**Light Years:** A light year is the distance that light will travel in one year.   
Speed of light in space = 300 000 km/s (approximately)   
In one year, light will travel about 9.46 X 1012 km. This is a light year.

**Units of AU** are used when referring to distances within our solar system e.g. the distance between Mars and the Sun at it’s furthest point is 1.67 AU

**Units of Light Years** are needed for longer distances e.g. Andromeda is the closest spiral galaxy to us and is 2 million light years away.

**Class Demo:** Using Toilet Paper and average distance chart in AU, please demonstrate distances between the planets of our solar system

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| **PLANET NAME** | **PLANET TYPE** | **DISTANCE FROM SUN (AU)** |
| Mercury | Inner (terrestrial) | 0.387 |
| Venus | Inner (terrestrial) | 0.722 |
| Earth | Inner (terrestrial) | 1.00 |
| Mars | Inner (terrestrial) | 1.52 |
| Jupiter | Outer (gas) | 5.20 |
| Saturn | Outer (gas) | 9.58 |
| Uranus | Outer (gas) | 19.20 |
| Neptune | Outer (gas) | 30.1 |